

Alaska Energy Inventory Project Completion of Phase 1**FY2009 Request:****\$350,000****Reference No:****43300****AP/AL:** Appropriation**Category:** Natural Resources**Location:** Statewide**House District:** Statewide (HD 1-40)**Estimated Project Dates:** 07/01/2008 - 06/30/2013**Project Type:** Planning**Contact:** Leta Simons**Contact Phone:** (907)465-2400**Brief Summary and Statement of Need:**

The Alaska Energy Inventory project will inventory and compile all available Alaska energy resource data suitable for electrical power generation and space heating needs including natural gas, coal, gas hydrates, geothermal, wind, hydro and biomass into a searchable GIS format with quantitative attributes. This data will be accessible through a user-friendly, web-based, interactive map with scalable layers to display the location, type, and where applicable, a risk-weighted estimate of quantity for energy resources available in a given area. The data will be used to identify locations or regions where the most economic energy resource or combination of energy resources can be developed to meet local needs.

Funding:	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	Total
AK Cap Inc	\$350,000						\$350,000
Gen Fund		\$350,000	\$350,000	\$250,000			\$950,000
Total:	\$350,000	\$350,000	\$350,000	\$250,000	\$0	\$0	\$1,300,000

☐ State Match Required ☐ One-Time Project ☐ Phased - new ☒ Phased - underway ☐ On-Going
0% = Minimum State Match % Required ☐ Amendment ☐ Mental Health Bill

Operating & Maintenance Costs:

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	
Totals:	0	0

Additional Information / Prior Funding History:

SLA 07/CH 30 \$ 500,000 Phase I: data collection and documentation; project web site

Project Description/Justification:

Alaska has considerable energy resources distributed throughout the state including conventional oil, gas, and coal, and unconventional coalbed and shalebed methane, gas hydrates, geothermal, wind, hydro, and biomass. While much of the known large oil and gas resources are concentrated on the North Slope and in the Cook Inlet regions, the other potential sources of energy are dispersed across a varied landscape from frozen tundra to coastal settings. Despite the presence of these potential energy sources, rural Alaska is mostly dependent upon diesel fuel for both electrical power generation and space heating needs. At considerable cost, large quantities of diesel fuel are transported to more than 150 roadless communities by barge or airplane and stored in large bulk fuel tank farms for winter months when electricity and heat are at peak demands. Recent increases in the price of oil have severely impacted the price of energy throughout Alaska, and especially hard hit are rural communities and remote mines that are off the road system and isolated from integrated electrical power grids. The high cost of energy for mineral extraction operations affects both the profitability of existing mines as well as the viability of new mines coming online, thereby reducing potential jobs in rural Alaska.

Even though the state has significant conventional gas resources in restricted areas, few communities are located near enough to these resources to directly use natural gas to meet their energy needs. Conventional natural gas from the production of the Alpine field on the North Slope will be utilized by the village of Nuiqsut. Renewed exploration in the Bristol

Bay area and other regions may result in production facilities near existing communities or remote mine sites. Coal resources in Alaska are distributed over a wide area with identified coal resources (all ranks) totaling in excess of 160 billion short tons, and estimated hypothetical and speculative resources as high as 5.5 trillion short tons. The possibility of coalbed methane resources is restricted to communities situated on top of or near identified coal resources capable of generating and sustaining methane gas production. Shalebed methane is currently being evaluated as an energy resource for the Red Dog Mine. Onshore gas hydrates in Alaska are restricted to the thick permafrost region of the North Slope. In Alaska, high-temperature geothermal resources that are capable of generating steam to run turbines to create electrical power are located along the Alaska Peninsula and Aleutian islands arc, an area of active volcanism. A belt of moderate- to low-temperature thermal springs extending across north-central Alaska and in Southeast Alaska can be utilized for direct use in central heating. Recent advances in technology have resulted in the development of small power generation units that can utilize moderate-temperature resources, including an experimental design recently installed at Chena Hot Springs. An array of wind turbine power generation and storage devices, currently in place at Kotzebue and a few other sites, can be utilized in other appropriate locations for renewable and conventional hybrid and distributed electrical power generation systems. Wind projects can help stabilize local energy prices and reduce the volume of fossil fuels needed to meet power generation needs. Communities situated near fast flowing or falling water, given the right economic conditions, have the potential to generate hydroelectricity from a renewable and nonpolluting resource. Biomass includes wood products and peat that can be used for space heating needs or utilized in a manner similar to a coal-fired power plant in that a solid fuel is combusted to heat water into steam.

\$500,000 was allotted for FY08 and, as of December, the project is in the third month of Phase I. The Division of Geological & Geophysical Surveys (DGGS), the Alaska Energy Authority (AEA), and the DNR Division of Forestry (DOF) have been working in concert to (1) notify and establish contacts with other agencies regarding the project's background and purpose, (2) design a web-based interface for distributing and displaying Alaska's energy resource data, (3) identify target end-users of the project's web site and data, (4) select key datasets to be used for testing purposes, and (5) determine the implications of providing data with quantitative attributes and the corresponding concerns of end-users misusing the data. DGGS is also collaborating with the Land Records Information Section (LRIS) and Geographical Information Network of Alaska (GINA) at the University of Alaska, Fairbanks to implement an interactive, web-based map interface allowing users to view, query, and download the available energy resource data. In addition, key datasets will be available for Google Earth and provided in the new, easy-to-use, georegistered, GeoPDF format. The latter formats accommodate users who wish to quickly view the data in already familiar software packages. The project is currently under budget for FY08, with a total of approximately \$268,000. This is in part due to the use of existing infrastructure and resources already established by LRIS and GINA. This will allow more funding to be utilized for risk-weighted analyses of the energy resources inventory and the upcoming field program scheduled to take place during FY09-FY10. As a result, the amount requested for FY09 is \$350,000, which is less than the original CIP funding request of \$500,000. The project, during FY09, will also draw on funds not utilized in FY08.

Why is this Project Needed Now?:

This project has been needed for a few years. Smaller projects have already been undertaken by various agencies in attempts to find local sources of power (oil and gas) for rural villages. Recent soaring crude oil prices have severely impacted rural Alaskans by increasing the cost of diesel fuel used for space heating and electrical power generation. The increased costs frequently necessitate a choice between heating a home and having food to eat. This situation has highlighted the issue again. This Alaska Energy Inventory project will collect and compile the necessary information on conventional and unconventional statewide energy resources for their proper evaluation in a sound and scientific manner. Cost effective energy savings in rural Alaska may be achieved by finding local, economically viable sources of energy as alternatives to a diesel fuel-based system or in combination with a diesel fuel-fired power plant.

Specific Spending Detail:

<u>LINE ITEM</u>	<u>DOLLAR AMOUNT</u>	<u>DESCRIPTION (text)</u>
Personal Services	\$ 160,000	Salary for DGGS staff
Travel	\$ 15,000	American Geophysical Union meeting in San Francisco,

Alaska Energy Inventory Project Completion of Phase 1**FY2009 Request:****\$350,000****Reference No:****43300**

Services	\$ 140,000	CA; meetings in Anchorage with LRIS and AEA RSA with LRIS and GINA
Commodities	\$ 35,000	Equipment, supplies and software

Project Support:

Broad support can be expected from:

- (1) rural communities,
- (2) electrical power utilities,
- (3) private-sector energy exploration companies, gas, geothermal steam, and wind turbine manufacturers, and independent investors that could benefit from these studies;
- (4) Native regional and village corporations with stakeholder interests,
- (5) State and Federal government natural resource evaluation and management agencies including the Division of Geological and Geophysical Surveys (DGGS), Division of Oil and Gas (DOG), Division of Forestry (DOF), and Division of Mining, Land and Water (DMLW) and Land Records Information Section (LRIS) from the State of Alaska's Department of Natural Resources; Alaska Energy Authority (AEA); Alaska Industrial Development and Export Authority (AIDEA); Department of Commerce, Community, and Economic Development (DCCED); Department of Transportation and Public Facilities (DOTPF); the Denali Commission; the U.S. Bureau of Land Management (BLM); and U.S. Bureau of Indian Affairs (BIA); and
- (6) research institutions including the University of Alaska Fairbanks (UAF), University of Alaska Anchorage (UAA), the Geographic Information Network of Alaska (GINA) and the Institute of Social and Economic Research (ISER).

Project Opposition:

None anticipated.